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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,449

05/02/2005

Atsushi Kaneda

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EXAMINER

GUGLIOTTA, NICOLE T

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/533,449	Applicant(s) KANEDA ET AL.	
	Examiner NICOLE T. GUGLIOTTA	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 23 is/are pending in the application.
- 4a) Of the above claim(s) 9 - 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 - 8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1 - 23 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 May 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/2/2005, 9/21/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1 - 8, drawn to a honeycomb structure with a particular Young's modulus.

Group II, claim(s) 9 - 16, drawn to a honeycomb structure with a particular strength.

Group III, claim(s) 17 - 23, drawn to a honeycomb structure with a particular porosity.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

3. The special technical feature is defined as a ceramic honeycomb structure comprising a Young's modulus of the plugging material lower than that of the cell wall, the strength of the plugging material is less than that of the cell wall, and the plugging material has a porosity of 97% or more. U.S. Patent No. 5,595,581 A teaches the above

special technical features and therefore applicant's invention does not provide a contribution over the prior art. As such, unity of invention is lacking.

4. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. During a telephone conversation with Benjamin Prebyl (Registration No. 60,256) on July 11, 2008 a provisional election was made with traverse to prosecute the invention of Group I, claims 1 - 8. Affirmation of this election must be made by applicant in replying to this Office action. Claims 9 – 23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 - 8 are rejected under 35 U.S.C. 102(a) as being anticipated by Suwabe et al. (US 2003/0165662 A1).

9. In regard to claims 1 - 3, Applicant contends “since a porosity of the plugging material is set to 97% or more of a porosity of the cell wall, the Young’s modulus of the plugging material becomes lower than that of the cell wall” (Specification, Page 6, Lines 2 – 5).

10. Suwabe et al. disclose the porosity of the sealers is larger than that of the partition walls (Section [0020]. Specifically, the porosity of sealers is larger than that of

partition walls preferably by 5% or more, more preferably by 10% or more (Section [0060]). Therefore, as described by applicants, the sealers, or plugging material, will inherently have a Young's modulus lower than that of the cell walls.

11. In regard to claims 4 and 6, Suwabe et al. disclose a ceramic honeycomb filter and structure has a preferred embodiment of having a porosity of 50 - 80% (Section [0024]).

12. In regard to claim 5, Suwabe et al. disclose partition walls having a thickness of 0.1 – 0.5 mm (100 – 500 μm).

13. In regard to claim 7, Suwabe et al. disclose the porous ceramic honeycomb structure and sealers are preferably formed by ceramic materials with excellent heat resistance, such as silicon carbide (Section [0078]).

14. In regard to claim 8, Suwabe et al. disclose cells which are alternately plugged at one end face and remaining cells plugged at the other end face so as to form checkerboard patterns at the end faces (Figure 3).

15. Claims 1 – 6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishihara et al. (EP 1251247 A1, provided by applicant).

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16. In regard to claims 1 - 4, Applicant contends "since a porosity of the plugging material is set to 97% or more of a porosity of the cell wall, the Young's modulus of the plugging material becomes lower than that of the cell wall" (Specification, Page 6, Lines 2 – 5).

17. Ishihara et al. disclose a porosity of the cells walls of 55% and a porosity of the plugs of 70% (Table 1, Samples 7 - 9 and 13- 15). Therefore, as described by applicants, the sealers, or plugging material, will inherently have a Young's modulus lower than that of the cell walls.

18. In regard to claim 5, Ishihara et al. disclose cell walls of 0.2 mm (200 μ m) thickness (Section [0031]).

19. In regard to claim 6, Ishihara et al. disclose the honeycomb structure to be made from a ceramic material (Section [0028]), with cells walls of 55% porosity (Section [0031]).

20. In regard to claim 8, Ishihara et al. disclose the cordierite material is placed at the end of selected cells so as to form the plugs. The plugs were arranged in checker work pattern (Section [0029]).

21. Claims 1 – 3 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Ichikawa et al. (U.S. Patent No. 5,595,581).

22. In regard to claims 1 - 3, Applicant contends "since a porosity of the plugging material is set to 97% or more of a porosity of the cell wall, the Young's modulus of the plugging material becomes lower than that of the cell wall" (Specification, Page 6, Lines 2 – 5).

23. Ichikawa et al. disclose a honeycomb exhaust filter in which the porosity of the sealing members (corresponds to applicant's "plugging material") of the exhaust gas filters is desired to be 110 – 140% of the porosity of the above honeycomb structure (corresponds to applicant's "cell wall"), for maintaining a high collection efficiency and decreasing pressure losses (Col. 2, Lines 31 – 36).

24. In regard to claim 8, Ichikawa et al. disclose cells that are plugged in an alternating manner so as to form checkerboard patterns at the end faces (Figures 1 - 3). Therefore, as described by applicants, the sealers, or plugging material, will inherently have a Young's modulus lower than that of the cell walls.

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claims 1 and 5, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamanaka et al. (US 2003/0140608 A1).

27. Hamanaka et al. disclose a filler 6 which is preferably composed of a material having a strength and/or Young's modulus lower than those of the material of the basal body of the honeycomb member 12 in order to obtain a honeycomb structure of large thermal stress relaxation (Section [0061]).

28. It would have been obvious to one skilled in the art at the time the invention was made that a plugged material may have a Young's modulus lower than that of the cell walls (the basal body of the honeycomb filter), as Hamanaka et al. has disclosed a filler which plugs the end of a honeycomb structure and therefore creates a thermal stress relaxation. Therefore, it would be obvious to apply this to all the plugs in the honeycomb and not just at the area of a slit.

29. In regard to claim 5, Hamanaka et al. disclose a partition wall thickness of 0.3 mm (300 μ m) (Section [0065]).

30. In regard to claim 7, Hamanaka et al. disclose a filler material which may be comprised of silicon carbide (Section [0061]).

31. In regard to claim 8, Hamanaka et al. (Section [0027]) disclose alternating plugged cells, which would create a checkerboard pattern.

32. Claims 2 – 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamanaka et al., as applied to claim 1 above, in view of Suwabe et al. (US 2003/0165662 A1).

33. In regard to claims 2 and 3, Hamanaka et al. are silent in regard to the porosity of the plugging material relative to the cell walls.

34. Suwabe et al. disclose the porosity of the sealers (corresponds to applicant's sealing material) is larger than that of partition walls preferably by 5% or more, more preferably by 10% or more (Section [0060]). When the porosity sealers are less than 70% there is insufficient pressure loss (Section [0060]).

35. It would have been obvious to one skilled in the art at the time the invention was made to make the porosity of the sealing material larger than that of the cell walls in order to achieve sufficient pressure loss.

36. In regard to claims 4 and 6, Hamanaka et al. are silent in regard to the porosity of the cell walls.

37. Suwabe et al. disclose that when the porosity is less than 50%, the ceramic honeycomb structure has a large pressure loss when used as a diesel particulate filter, resulting in poor exhaust efficiency of diesel engines. The ceramic honeycomb structure of the invention of Suwabe et al. has a porosity of 50 - 80%, and a preferred range of porosity is 60 - 70% (Section [0052]).

38. It would have been obvious to one skilled in the art at the time the invention was made for the porosity of the ceramic to be greater than 50% in order to avoid pressure loss and therefore poor exhaust efficiency.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICOLE T. GUGLIOTTA whose telephone number is (571)270-1552. The examiner can normally be reached on M - Th 8:30 - 6 p.m., & every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NICOLE T. GUGLIOTTA

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Examiner
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/Carol Chaney/
Supervisory Patent Examiner, Art Unit 1794